its user terminals with an additional measure of flexibility to use at least some primary spectrum for gateway terminals (and for related command and control functions) without being subject to secondary user constraints and RR 2613. Id.

A minimum designation of 500 MHz of spectrum in the 28 GHz band for NGSO satellite system service links operating in the FSS is required internationally since NGSO system operators are likely to be required to operate their systems in a manner that avoids interference with grandfathered GSO satellite uses of the 28 GHz band. Under the United States' current WRC-95 proposal, NGSO satellite systems operating in the 28.6 - 29.1 GHz band will not be permitted to interfere with currently operational GSO satellite systems in the 28 GHz band and will have to configure the operation of their satellite systems accordingly. Thus, a NGSO satellite system operating with 500 MHz of primary spectrum may need to coordinate its use with GSO satellite systems that are grandfathered in the 28.6 - 29.1 GHz band internationally. Several GSO satellite systems, such as ITALSAT and CSE, already operating, would have their operations grandfathered under the United States' current WRC-95 proposal.[15] WRC-95 Report, at Document No. 015-E. The need to address these likely coordination requirements could require a primary designation of spectrum for service links for NGSO satellite systems in excess of the 500 MHz proposed by the FCC. For these reasons, 500 MHz of primary spectrum is the minimum amount of spectrum required for NGSO satellite systems in the 28 GHz band.

[15] Similarly, in the 18.8 - 19.3 GHz (space-to-Earth) band, operational GSO satellite systems such as SCS, N-Star, Superbird and ITALSAT, will be grandfathered under the U.S. proposal. Thus, NGSO satellite systems operating in these bands would have to coordinate with these GSO satellite systems.

E. In Order to Successfully Deploy Global NGSO Satellite Systems Operating In The Ka Band, The 28.6 - 29.1 GHz Band Must Be Designated On A Primary Basis For NGSO Use

In the Third NPRM, the FCC states that the location in the 28 GHz band of the 500 MHz of primary spectrum for NGSO FSS uplinks is dictated in part by the location of the corresponding downlink frequencies. Third NPRM, at para. 58. As the Commission correctly notes, a NGSO downlink designation at spectrum below 18.8 GHz is unworkable. Id. As a result, the FCC proposes to pair the downlink spectrum at 18.8 - 19.3 GHz with uplinks at 28.6 - 29.1 GHz for NGSO use.

The 18.6 - 18.8 GHz band is allocated for the passive Earth-Exploration Satellite Service ("ESS") on a co-primary basis in Region 2 and on a secondary basis in Regions 1 and 3 with the FSS. The United States, Europe, Japan and France all plan to operate passive ESS sensors in the 18.6 - 18.8 GHz band in the near future. These sensors are vulnerable to interference from FSS downlinks into their backlobes and from Earth reflections of FSS downlinks into their transmissions.

In order to protect passive ESS sensors from harmful interference, the rules of both the ITU and the FCC place limits on FSS downlink power flux density at the Earth's surface. US Table of Allocations footnote 255; International Table of Allocations footnote 872. For domestic operation, US footnote 255 limits the FSS power flux density at the Earth's surface to -101 dBW/m^2 in the 18.6 - 18.8 GHz band. NGSO FSS networks generate power flux densities at the Earth's surface of almost -105 dBW/m^2 in a 1 MHz band. Therefore, if a NGSO satellite system operating in the FSS, such as Teledesic, was operating in the 18.6 - 18.8 GHz band, it would produce a power flux density of close to -82 dBW/m^2 in this band.

This is 19 dB above the limit allowed under domestic regulations and does not permit co-frequency sharing of the 18.6 - 18.8 GHz band with the ESS.

GSO systems operating in the FSS can share the 18.6 - 18.8 GHz band with the ESS because these systems operate within the required power flux density limits. GSO networks operating in the FSS generate power flux densities at the Earth's surface of -121.2 dBW/m^2 in a 2 MHz bandwidth. See e.g., Application of Hughes Communications Galaxy, Inc., File Nos. 3/4-DSS-P/LA-94, CSS 94-021 through CSS-94-025. Therefore, a GSO FSS system operating in the 18.6 - 18.8 GHz band, such as Spaceway, would generate a power flux density of -101.2 dBW/m^2. This is within domestic power flux density limits. Thus, operation of the Spaceway and similar GSO FSS systems in this band will not cause unacceptable interference to the ESS.

Use of the 17.7 - 18.4 GHz band for the downlinks of NGSO FSS systems also is unworkable. The 17.7 - 17.8 GHz band is allocated in Region 2 to the FSS on a primary basis until March 31, 2007. ITU footnote 869B. After April 1, 2007, this band will be allocated to the broadcast satellite service ("BSS") on a primary basis. ITU footnote 869A. It does not appear that service links proposed for NGSO satellite systems such as Teledesic are technically compatible with the BSS. Further, the 18.1 - 18.3 GHz band is allocated to the meteorological satellite service on a primary basis and its use is limited to GSO satellite systems. ITU footnote 870. Therefore, NGSO satellite system service links will not be able to operate in the 18.1 - 18.3 GHz band. In addition, the 18.1 - 18.4 GHz band also is foreclosed as a technical matter for service links for NGSO satellite systems because the spectrum is allocated for BSS feeder links. ITU Footnote 870A. Based on these technical

and legal constraints, it is not feasible for NGSO satellite systems to operate their downlinks in spectrum below 18.8 GHz.[16]

Customary international practice requires the pairing of uplink and downlink spectrum in order to facilitate international coordination. Accordingly, to garner sufficient international support at WRC-95 for the United States' proposal to allocate primary spectrum to NGSO satellite systems, it is essential that the United States pair uplink and downlink spectrum domestically for NGSO satellite systems. Because it is not technically feasible for NGSO satellite systems to operate their downlinks below 18.8 GHz, the FCC proposes a primary NGSO FSS designation in the 18.8 - 19.3 GHz band. See Third NPRM, at ¶ 58; WRC-95 Report, at Proposal 015. The paired uplink frequency to this band is 28.6 - 29.1 GHz band. It is essential, therefore, that the FCC adopt a 28 GHz band segmentation plan that designates, on a primary basis, spectrum for service links for NGSO satellite systems at the 28.6 - 29.1 GHz band.

It is unacceptable to designate paired uplink and downlink bands for NGSO satellite system service links below the 18.8 - 19.3 GHz (space-To-Earth) and the 28.6 - 29.1 GHz (Earth-to-space) bands; the power flux density limits at the 18.8 - 19.3 GHz band are less restrictive because the ESS does not operate in these bands and use by NGSO satellite system service links is not limited or relegated to secondary status. Consequently, Teledesic supports the FCC's proposal for the designation of spectrum on a primary basis in the 28.6 - 29.1 GHz band for NGSO satellite systems with a conventionally paired downlink at 18.8 - 19.3 GHz. See Third NPRM, at para. 58.

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[16] GOS satellite systems, on the other hand, could share this spectrum by orbital arc separation.

F. The 28.6 - 29.1 GHz Band Should Be Designated On A Primary Basis For NGSO FSS And MSS Use

The FCC's proposal to designate on a primary basis the 28.6 - 29.1 GHz band for NGSO FSS use fails to recognize and take into consideration the distinction between service types and system types. As indicated above, the FSS/MSS distinction is not meaningful for spectrum allocation issues in the case of NGSO satellite systems where the space segment is in motion and the notion of orbital arc separation is irrelevant. This distinction is not inherent in the nature of services enabled by NGSO satellite systems. The same interactive broadband capability of the Teledesic system that can extend benefits to users in fixed applications, such as hospitals, can also benefit users in mobile applications, such as ambulances and other emergency vehicles. Thus, Teledesic urges the FCC to designate the spectrum presently proposed for NGSO satellite systems in the 28.6 - 29.1 GHz and 18.8 - 19.3 GHz bands for both FSS and MSS. Such action will maximize efficient spectrum usage and benefit the public by enabling NGSO satellite systems to use this spectrum to provide additional services without adversely impacting other uses or users of the Ka band. In addition, designation of NGSO spectrum for both FSS and MSS applications will eliminate or minimize the need for NGSO satellite systems to use spectrum proposed for GSO satellite systems for NGSO MSS applications.

G. No Contingency Plan Is Necessary

In the WRC-95 Report, the United States has adopted positions with respect to the allocation of spectrum for satellite services in the 28 GHz band and the companion 17.7 - 20.2 GHz band that are identical to the proposed 28 GHz band segmentation plan set forth in

the Third NPRM. See WRC-95 Report, at Document Nos. 010 and 015. Specifically, the proposals seek to remove the effect of RR 2613 in certain portions of the Ka band in order to enable NGSO satellite systems to operate with priority status. If adopted at WRC-95, the U.S. proposal would facilitate the implementation of the 28 GHz band segmentation plan proposed in the Third NPRM. Third NPRM, at para. 66.

In its Third NPRM, the Commission notes that adoption of a different proposal at WRC-95 could effect the ability of the FCC to implement the 28 GHz band segmentation plan. Accordingly, the FCC requests comment on the appropriateness of contingency plans. Id. Public speculation on the possible outcome of WRC-95 at this early stage of the preparatory process could adversely prejudice the result of the Conference and therefore should be avoided. However, Teledesic believes that the U.S. position at WRC-95 on designations in the Ka band for NGSO satellite systems will be adopted by the Conference but recognizes that it is imperative that the U.S. advance that position aggressively. If sufficient spectrum in the Ka band is not allocated at WRC-95 to accommodate the requirements of Teledesic and other NGSO satellite systems proposed in the Ka band, the random deployment of GSO satellite networks between now and WRC-97 will preclude the ability of future WRCs to establish an adequate designation of spectrum at the Ka band on a priority basis for non-GSO satellite networks. Action on this designation is imperative at WRC-95 while the Ka band remains largely unencumbered. In any event, any subsequent action at WRC-97 to designate spectrum in the Ka band for NGSO satellite networks also would require the adoption and implementation by the FCC of a corresponding domestic band plan. Therefore, a contingency plan is unnecessary and, indeed, counterproductive to United

States efforts to secure a NGSO satellite service designation in the 28 GHz band. In fact, the adoption of a domestic band plan to accommodate NGSO satellite use of the 28 GHz band should precede any WRC action. A United States commitment to NGSO use of the Ka band prior to WRC-95, in the form of a domestic allocation, will increase the United States' ability at WRC-95 to secure a similar commitment and allocation internationally.[17]

H. The FCC Should Attempt To Avoid Mutual Exclusivity Before Using A Competitive Bidding Scheme To Award Licenses for Satellite Services

In the Third NPRM, the FCC proposes to institute a competitive bidding procedure pursuant to Section 309(j) of the Communications Act, 47 U.S.C. § 309(j), to award licenses for NGSO and GSO satellite systems when mutual exclusivity occurs. Third NPRM, at paras. 129-136 and 145. Before using a competitive bidding procedure to award radio licenses, the FCC is statutorily mandated to exhaust all means to resolve mutual exclusivity. As the FCC itself has recognized, "the Commission is obliged to attempt to eliminate mutually exclusivity." Big LEO Order, 9 FCC Rcd at 5966. Congress stated in the legislative history to Section 309(j) that avoidance of the need to find mutual exclusivity by use of a negotiated or engineering solution was preferable to an auction (or lottery), especially with regard to global satellite systems. See H.R. No. 103-111, at 258.[18] This mandate was

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[17] Similarly, contrary to the contentions of Loral and Constellation, action by the FCC prior to WRC-95 to allocate spectrum domestically in the Ka band for NGSO MSS feeder links to accommodate Motorola and TRW will facilitate the international allocation of that spectrum for such uses at WRC-95.

[18] In the original House Report (House Report No. 103-111, at p. 258) from which the statutory language was drawn, the Committee stated:

> In connection with application and licensing proceedings, the Commission should, in the public interest, continue to use engineering solutions, negotiation, threshold qualifications, service rules, and other means in order to avoid mutual exclusivity. The licensing process, like the

embodied in Section 309(j)(6)(E) which states that grant of authority to assign licenses by competitive bidding does not relieve the FCC of its public interest obligation to seek to avoid mutual exclusivity in licensing proceedings. 47 U.S.C. § 309(j)(6)(E); see also Letter to Acting Chairman James H. Quello, FCC, from Congressman John D. Dingell (November 15, 1993). ("As a general proposition, it was never the intent of Congress for auctions to replace the Commission's responsibilities to make decisions that are in the public interest. Rather the competitive bidding authority was always intended to address those situations where the Commission could not either narrow the field of applicants or select applicants based upon substantive policy considerations").

Consistent with Congress' view, the FCC heeded this Congressional mandate and attempted to resolve potential cases of mutual exclusivity among the Big LEO applicants before deciding whether to employ auctions to license these global MSS systems. Thus, for instance, the FCC instituted a negotiated rulemaking in order to develop sharing criteria to avoid potential cases of mutual exclusivity. See Report of the MSS Above 1 GHz Negotiated Rulemaking Committee (April 6, 1993). While the negotiated rulemaking committee reached agreement on many issues, it did not reach a consensus regarding a technical method by which all the proposed Big LEOs could share the spectrum. Despite this failure, the FCC continued its efforts to avoid mutual exclusivity among Big LEO applicants.

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allocation process, should not be influenced by the expectation of federal revenues and the Committee encourages the Commission to avoid mutually exclusive situations, as it is in the public interest to do so. The ongoing MSS (or "Big LEO") proceeding is a case in point. The FCC has and currently uses certain tools to avoid mutually exclusive licensing situations, such as spectrum sharing arrangements and the creation of specific threshold qualifications, including service criteria. These tools should continue to be used when feasible and appropriate.

In January 1994, the FCC adopted a notice of proposed rulemaking that proposed a sharing plan that would assist in avoiding mutually exclusivity. See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, 9 FCC Rcd 1094 (1994) ("Big LEO NPRM"). Subsequently, the FCC encouraged the Big LEO applicants to attempt to privately negotiate an agreement to avoid mutual exclusivity. The FCC ultimately adopted a hybrid band sharing/band segmentation plan in Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610 - 1626.5/2483.5 - 2500 MHz Frequency Bands, 9 FCC Rcd 5936 (1994) ("Big LEO Order"), that designated spectrum exclusively for use by an FDMA/TDMA satellite system and designated other spectrum to be shared among up to four Big LEO applicants proposing CDMA satellite systems. The FCC proposed an auction procedure *only* as a method to resolve the *rare* case where mutual exclusivity could occur. See Big LEO Order, 9 FCC Rcd at 5963, 5965-5970.[19] The FCC stated that it would implement competitive bidding procedures only in the event that all six Big LEO applications were still mutually exclusive after amending their applications to meet all of the newly adopted service and other requirements. Big LEO Order, at 9 FCC Rcd at 5963 and 5972.

Similarly, with respect to licensing NGSO and GSO satellite systems in the Ka band, Section 309(j) obligates the Commission to adopt licensing rules that are directed at avoiding the need for mutual exclusivity. See id.; see also Big LEO NPRM, 9 FCC Rcd at 1115-1118.

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[19] The FCC has stated that eliminating mutual exclusivity advances the Commission's goals of licensing multiple systems and enhancing competition. See Radio-Determination Satellite Service, 60 RR 2d 298, 301 (1986).

Therefore, the FCC must pursue all methods of avoiding mutual exclusivity prior to employing auctions to award licenses for satellite systems in the Ka band. The Commission should pursue traditional means of avoiding mutual exclusivity, such as providing parties with the opportunity to negotiate an agreement to avoid mutual exclusivity or convening a negotiated rulemaking committee to reach a spectrum sharing plan.

I. The Commission Should Defer Consideration of Service Rules For NGSO Satellite Systems and Proceed Immediately to Adopt A 28 GHz Band Segmentation Plan

In the Third NPRM, the FCC seeks comment on the type of service rules that should be created for NGSO satellite systems operating in the FSS, including financial qualifications, spectrum efficiency standards, service availability and technical standards. Third NPRM, at para. 127. Teledesic is concerned that the delay occasioned by FCC consideration of service rules for NGSO satellite systems will preclude the adoption of a domestic 28 GHz band plan prior to WRC-95. For the United States to be effective in securing an adequate allocation of spectrum at WRC-95 for service and feeder links for NGSO satellite systems, the FCC must conclude its deliberations concerning the domestic use of the 28 GHz band prior to commencement of the Conference. At the 1995 Conference Preparatory Meeting ("CPM-95") held this June and at subsequent bilateral negotiations, foreign delegations were critical of the United States for even considering the domestic LMDS terrestrial allocation in a band globally allocated for satellite services. In fact, because of the pending 28 GHz proceeding and the FCC's consideration of licensing an incompatible terrestrial service in the 28 GHz band, the United States' commitment to satellite services in general was questioned. Any further lack

of U.S. commitment to preserve existing global satellite allocations will ultimately hamper United States efforts to obtain much needed designations for NGSO service and feeder link use at WRC-95. Therefore, it is imperative that the FCC not get bogged down in the time consuming and controversial process of adopting service rules for NGSO satellite system use of the Ka band and immediately proceed to the adoption of a band segmentation plan for the 28 GHz band prior to WRC-95.

J. The FCC Should Adopt Stringent Filing Requirements In Order To Avoid Encumbering The Licensing Process With Insincere Applicants

After the FCC has adopted a 28 GHz band segmentation plan, the Commission should adopt stringent threshold financial, technical, service and legal requirements to ensure the prompt disposition of insincere applicants. The adoption of stringent service and qualifications requirements will ensure that only applicants that are actually intent upon constructing and operating global NGSO satellite systems are considered for licensing by the FCC. Thus, for example, the FCC may consider adopting minimum domestic and international geographic coverage requirements to ensure the provision by NGSO satellite systems of universal access throughout the United States and the world. Such a requirement will further the development of the global information infrastructure and ensure that the spectrum is employed fully and effectively. Such a requirement also will serve as a basis to avoid encumbering the licensing process with insincere applicants. A strict financial requirement should be adopted that involves an initial threshold of irrevocably committed external financing that does not rest on contingencies or require further action by any party. To help ensure the timely implementation of the proposed service and to screen abusive filings, applicants relying on internal funding to establish their financial qualifications should

be required to document the set aside of specific funds for the project pursuant to board action (and reflected as such on audited balance sheets).[20]

In the past, large companies have been able to avoid having to make any meaningful financial qualifications showing simply by submitting a balance sheet for the parent corporation showing current assets or operating income sufficient to cover system costs. Such a requirement allows big companies to file applications without any real internal or external funding commitment for the project, while companies that are not part of a larger entity are required to secure a firm external source of funding. An applicant for a broadband NGSO satellite system should not be allowed to rely on an internal balance sheet to meet the FCC's financial requirement unless the financial commitment for the project is shown to be secured by explicit and irrevocable board action and is clearly reflected on the company's balance sheet and the audited financial statements.[21] Only by adopting these and other requirements will the FCC avoid encumbering the licensing process with abusive filings. Additionally, the imposition of such requirements will serve the public interest by reducing the likelihood of mutual exclusivity.

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[20] In the past, the FCC has allowed applicants to rely on internal capital accounts to meet their financial qualifications even though the applicant had not committed that capital to the proposed project and in fact may not have on hand actual funds sufficient for the proposed project. This requirement can easily be abused by an applicant because it enables a large company without a firm financial commitment to the proposed project to meet the FCC's requirement simply by submitting a balance sheet showing the availability of sufficient capital to meet its projected construction and operating costs. This allows abusive filings, for example, by large equipment manufacturers seeking to gain leverage in the contracting process. Similarly, an applicant for a competitive service or system might file an application solely to create mutual exclusivity or to encumber the licensing process while its other efforts proceed unhindered.

[21] Under rules of the Securities Exchange Commission ("SEC"), when a publicly trade company has made a material commitment for capital expenditures, the financial commitment and the anticipated source of funds needed to fulfill such a commitment must be disclosed in the management discussion and analysis section of the company's SEC filings. 17 C.F.R. § 229.303 (1995).

Applications for broadband NGSO satellite systems in the 28 GHz band need their own financial qualifications test that reflects the unique nature of these systems. The sheer magnitude of a broadband NGSO satellite system and its global nature make it unrealistic to require a commitment for the full financial requirement at an early stage. While some minimum upfront financing requirement is necessary to weed out insincere applicants for this type of system, the financial requirement should reflect the tiered and sequential nature of the financing process. An irrevocable financial commitment at the time of filing in the $20 to $50 million range would be sufficient to weed out insincere filings. Subsequent financial milestones tied to other project goals could be used to reflect the tiered and sequential nature of the financing process.

In the event that the Commission is unable, despite all reasonable efforts, to avoid mutual exclusivity for satellite system applicants in the Ka band, a modified form of competitive bidding may be appropriate. If all engineering solutions, private negotiations, threshold qualifications requirements and service rules have not been able to eliminate possible cases of mutually exclusivity, a modified competitive bidding procedure may be preferable to other methods, such as comparative hearings and lotteries, as a means of awarding satellite licenses to qualified, mutually-exclusive applicants. However, use of a domestic competitive bidding procedure in connection with the licensing of a global satellite system raises serious international issues that need to be thoroughly considered and resolved before such a procedure is adopted.

III. CONCLUSION

Based on the foregoing, Teledesic urges the FCC to proceed immediately to adopt its proposed domestic 28 GHz band segmentation plan. Prompt FCC action on the band plan is essential if the United States is to succeed at the upcoming WRC-95 in obtaining necessary spectrum designations for both service and feeder links for NGSO satellite systems.

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CERTIFICATE OF SERVICE

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